

ENGLISH TRANSLATION OF THE INTERNATIONAL APPLICATION

FOR NATIONAL PHASE SUBMISSION

12

Claims

1. A method for producing electrical contacting of a piezoelectric actuator (1) and for polarizing the piezoelectric actuator (1), the actuator (1) having at least one piezoceramic layer (3) which has two spaced electric contacts (4, 8, 9), electric conductors (5, 10, 11) being soldered to the electric contacts (4, 8, 9), the piezoelectric actuator (1) being heated up to a soldering temperature during the soldering process, characterized in that during the soldering process a polarizing voltage is applied to the conductors (5, 10, 11) and the piezoceramic layer (3) is polarized.
2. The method as claimed in claim 1, characterized in that a solder material (13) is used whose soldering temperature is above the Curie temperature of the piezoceramic layer (3).
3. The method as claimed in claim 1 or 2, characterized in that the polarizing voltage is also applied during a cooling process, and that the voltage is limited to a maximum value during cooling of the actuator.
4. The method as claimed in one of the claims 1 to 3, characterized in that the polarizing voltage is applied during a heating process before a maximum temperature is reached, and that the current is limited to a maximum value during heating of the actuator (1).

ENGLISH TRANSLATION OF THE INTERNATIONAL APPLICATION

FOR NATIONAL PHASE SUBMISSION

13

5. The method as claimed in one of the claims 1 to 4, characterized in that the voltage present during polarization is recorded and evaluated in order to assess the polarization and/or the actuator (1).
6. The method as claimed in one of the claims 1 to 5, characterized in that the current flowing during polarization is recorded and evaluated in order to assess the polarization and/or the actuator (1).
7. The method as claimed in one of the claims 1 to 6, characterized in that the conductors (10, 11) are pressed onto soldering surfaces of the contacts (8, 9) via heating blocks (15), and that the heating blocks (15) at least partially heat up the actuator (1).
8. The method as claimed in one of the claims 1 to 7, characterized in that a plurality of actuators (1) are soldered to conductors (10, 11) and polarized simultaneously.
9. The method as claimed in claim 8, characterized in that the conductors (10, 11) of a contact (8, 9) are used monolithically for a plurality of actuators (1) during soldering and polarization, and that after soldering and polarization the conductors (10, 11) are divided into individual conductor pieces for each actuator (1).

ENGLISH TRANSLATION OF THE INTERNATIONAL APPLICATION

FOR NATIONAL PHASE SUBMISSION

14

10. The method as claimed in claim 9, characterized in that the conductors (10, 11) are connected to contact pins (6, 7) prior to soldering and polarization.
11. The method as claimed in one of the claims 1 to 10, characterized in that the actuator (1) is heated up to above the Curie temperature of the piezoceramic layer (3) during the soldering process.